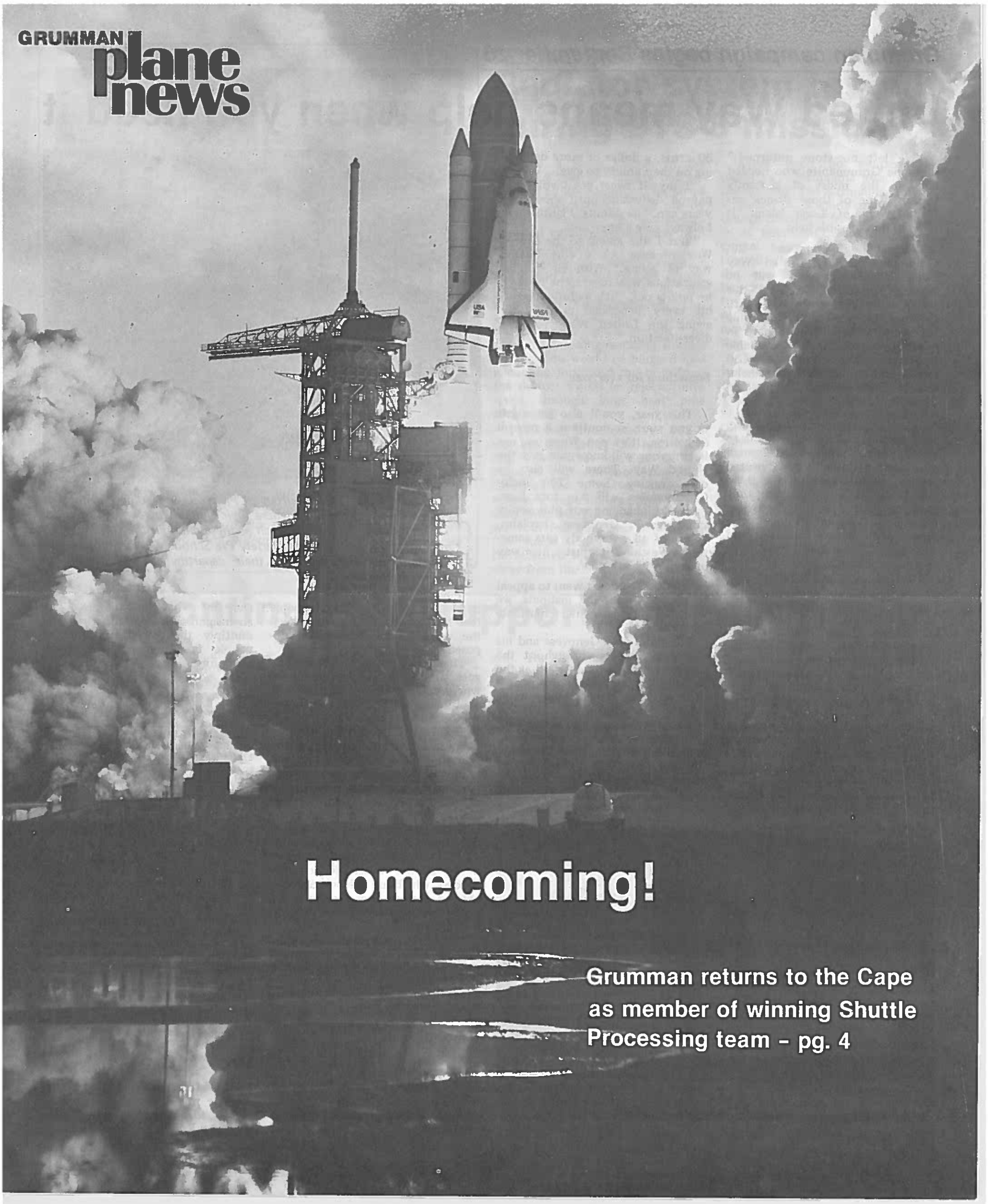
GRUMMAN
plane news



# Homecoming!

Grumman returns to the Cape as member of winning Shuttle Processing team - pg. 4

*Grumman campaign begins September 26*

# United Way means help when you need it

"We left no stone unturned," said one Grummanite who needed help in the midst of a family tragedy. One of those stones was United Way of Long Island. It pointed him towards help.

Starting September 26, Grumman's annual United Way Long Island campaign will be turning towards you. And this year's campaign, which runs until October 14, will offer something for everyone who gives. That's in addition to all the help available to Grummanites from the 130 health and human services agencies that United Way of Long Island helps fund.

What is there about United Way that should make people want to give? "For people in Grumman who need a United Way-sponsored service, that service will be there for them, in part, because they gave," says Tom Genovese, Grumman Corporation vice president and general counsel and this year's Grumman United Way campaign chairman.

Here on Long Island money goes to such organizations as Brookhaven Memorial Hospital, the United Cerebral Palsy Association of Nassau, Long Island Jewish-Hillside Medical Center, and the Family Counseling Service.

### Get diversity

This year, Genovese says, Grumman will be asking everyone who isn't already giving to start a payroll deduction. Those who are on payroll deduction will be asked to consider adding to their deduction by a small amount — 25 cents, 50 cents, a dollar or more depending on their ability to give.

"I myself never got involved in payroll deduction until about two years ago," he admits. "Until then, I always gave a lump sum.

"But I like giving to the United Way because it's a consolidated way of giving." With all the organizations who need to be funded, he points out, "It's awfully hard to hit every beneficial charity. By giving the United Way, you get diversification."

### Something for everyone

This year, you'll also get a gift if you start or continue a payroll deduction. It's a pen. When you use it, everyone will know you gave the United Way. There will also be one drawing. Some 700 lucky Grummanites will win tote bags.

"We're changing our philosophy this year," Genovese explains. "First of all, everybody gets something. We think it's just a nice way of saying 'Thank you'.

"Besides, we don't want to appeal to people's gambling instincts, we want to appeal to their charitable instincts."

The point that Genovese and his campaign helpers throughout the company want to make is that the United Way represents the people of the Long Island community helping each other.

Every year, one of every four Long Islanders uses one or more of the United Way agencies. Yet, there is still a reluctance on the part of many Grummanites to join the payroll deduction plan. "Yes, that's true," says Genovese. "My own impression is that a lot of people feel the United Way doesn't keep the money here, where it's supposed to be going."

The money raised by United Way goes to provide services you need where you live and work. Last year, about $6.5 million was distributed to the 130 agencies served by the United Way of Long Island.

And 85 cents of every dollar you give to United Way goes to those agencies. Says Genovese, "What impressed me most, and this reflected a concern I had, was that United Way is not an organization of highly paid individuals." United Way depends on the work of some 15,000 volunteers — your neighbors — to choose which services are needed, which are the best agencies able to provide those services, and how the available funds will be distributed.

But as streamlined as the United Way of Long Island is, the cost of services rendered by the Boy Scouts, the Girl Scouts, the American Red Cross, the Long Island Sickle Cell Project, the Suffolk Hearing and Speech Center and others, is constantly rising.

That's why the Grumman campaign is asking you to consider giving a bit more this year.

"Rather than asking for the world," Genovese says, "if Grummanites can increase their donation by what would seem like an insignificant amount, when you multiply that by the number of people in Grumman, it's worth something."

***Beyond money.*** *Cleo Courten of Plant 30 and John Harriman of Plant 35 learned firsthand where their United Way contributions go. The donations help people, such as these children the Grummanites met when they visited the Variety Pre-Schooler's Workshop. Both Courten and Harriman are their departments' 1983 campaign representatives.*

***Getting to know you.*** *Linda Hippner, a co-manager of the Grumman United Way campaign, visited Doubleday Babcock Senior Center and met its pianist, Fred Prior.*

# obituaries

**WILLIAM L. HORNEY** of Maintenance Administration, Plant 56, died September 1 at the age of 52. He started with the company in 1967 and resided at 9022 Hedgerow Way, Perry Hill, MD 21236.

**JOSEPH SZYMANSKI** of Configuration Data Management, Plant 40, died August 22 at the age of 50. He joined Grumman in 1973 and resided at 10 Grendon Lane, Commack.

**JAMES COOPER** of A6/EA6B Join/Structures, Plant 6, died August 27 at the age of 58. He started with the company in 1963 and resided at 865 Love Lane, Mattituck.

**ALAN PULCRANO** of EF111 Structural Modifications, Plant 6, died August 29 at the age of 36. He joined the company in 1965 and resided at 168 Parkview Drive, Shirley.

**PHILIP E. PIACENTINI** of Integrated Logistics Support, Plant 25, died September 9 at the age of 66. He joined the company in 1967 and resided at 64 Debora Drive, Plainview.

## *Worth the wait*

Due to space limitations, the 'service milestones' listings will be published in the next issue of *Plane News* on Friday, October 14.

**History repeated.** *When this Hellcat from the Kalamazoo Aviation History Museum flew by the U.S.S. Intrepid Sea-Air-Space Museum, on August 31, it marked the 40th anniversary of Grumman Hellcats entering combat during World War II. This plane was delivered to the Navy in May 1945. The museum bought it from a private owner in 1979 and restored it.*

## Keeping it cool in space

# Radiator system tested during STS-8 mission

Inside a space station in the 1990's, it may get mighty hot because of all the equipment on board and the experiments being run by space scientists. A Grumman-designed radiator system may help to cool things off.

According to project engineer Joe Alario, a heat rejection system was successfully tested on the recent Shuttle mission STS-8. "This system is what we hope to use on the proposed Space Station," he says. "All heat generating devices on a station would be plugged into a cooling loop and the heat from the devices would be rejected into space through large heat pipe radiators."

The small unit tested on STS-8 was set up against the rear cargo bay bulkhead of the Shuttle. The two-foot by one-foot test unit consisted of a heater connected to a new type of heat pipe Grumman designed. The heat pipe, which was four feet long, was bent into a "U" shape. There was a radiating fin attached to the leg of the "U" away from the heater.

There were no temperature-recording instruments attached to the radiator. The astronauts visually inspected and photographed the change in color — from red to black — of temperature-sensitive, liquid crystal tapes. These tapes criss-crossed the fin and ran along the heat pipe. As heat would be carried from the heater out to the fin, the astronauts could see how evenly and well the heat moved along the pipe to the fin and then into space.

The reason for using the tapes instead of instruments was time. NASA's TDRS-B (the second Tracking and Data Relay Satellite designed for communications between the Shuttle and mission control) had a problem and was scratched from the STS-8 manifest.

"Our STS-8 'tiger team' turned the experiment around in about five weeks," Alario points out.

The next step is to test a full size, 50-foot long radiator. No date or Shuttle launch has yet been earmarked for such a test.

# GHC continues to support space program

During the Apollo era in the Sixties, Grumman went to Houston to support the LM program. Two decades later, Grumman people are still involved in the nation's space endeavors. In fact, a Grumman Houston Corporation product recently flew aboard STS-8.

Grumman Houston Corporation, a subsidiary of Grumman Aerospace, built the celebrated Payload Flight Test Article (PFTA), the 7,500-pound dumbbell that flexed the muscles of the Remote Manipulator Arm during the recently-completed Space Shuttle mission STS-8.

"It was originally designed by NASA, before the Shuttle ever flew," says Bill Seib, deputy director of Engineering for GHC.

"It's basically a dummy satellite whose purpose is to train astronauts to move large objects in space." GHC started building the PFTA in 1979; delivery was in June of 1980.

### Continued efforts

Half of the weight of the 15-foot diameter, 45-foot long "satellite" is a lead ballast in the back of PFTA, which GHC had cast by a local company. The rest of the structure, all of it built by GHC, is aluminum, except for the steel grappling fixtures and two beta cloth screens. The screens, one fore and one aft, were designed to hide the PFTA's trunnions from the view of the astronaut working the manipulator arm. The astronaut must learn to use the Shuttle cameras to place the trunnions into the proper fittings on the Shuttle.

There are also optical alignment markings all over the PFTA. Astronauts use these to determine the speed, direction and rate of rotation of the PFTA as it is being moved.

Though the STS-8 mission of the PFTA was accomplished, its useful life may not be over. "There has been some talk of putting a standardized propulsion system on it," says Seib. Shuttle crews could practice retrieving large objects already in space, such as inoperative satellites. They'd launch the powered PFTA, go get it and bring it back to the Shuttle's cargo bay.

PFTA was the most apparent of Grumman Houston's space projects. Every Shuttle flight carries some Grumman Houston products, though NASA undoubtedly hopes they won't be needed.

"We built a set of emergency tools designed by the same NASA team that designed the PFTA," says Seib.

"These are used in case the Shuttle's bay doors will not close." The astronauts go into the bay, cut structures that open the doors, winch down the doors and lock them shut. Included in each ship set of tools are a pair of winches, nine three-point latches to hold the doors closed, a NASA-patented ratchetting tube cutter, a bolt extractor and latch tool.

Grumman Houston built three ship sets; the last was delivered in the beginning of 1982.


**GRUMMAN plane news**

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## Unit values

Unit Values
as of
July 31, 1983

| | |
|---|---|
| Equity Fund. . . . | $2.498 (down from $2.560) |
| Fixed Income Fund. . . . . | $3.336 (down from $3.447) |
| Guaranteed Income Fund . . . | $1.655 (up from $1.639) |
| Company Stock Fund . . . . | $60.50 (down from $63.938) |

(June 30 values are in parentheses)

# Teamed with Lockheed, Grumman wins Shuttle Processing Contract

"Grumman is back in the space business in a big way!" proclaimed Grumman Aerospace President George Skurla. The Lockheed-led team which includes Grumman Technical Services has just won the multi-billion dollar Shuttle Processing Contract (SPC). NASA announced its selection on Wednesday, September 7.

Selected over a team headed by Rockwell International, the Lockheed Space Operations Company team consists of Grumman, Morton Thiokol and Pan American World Airways. The value of the contract for two, three-year price periods is about $2.5 billion. Over a 15-year span, the Lockheed-led team could do more than $6 billion in shuttle processing business; Grumman's share over that same 15-year span will be about $900 million.

Under the contract, the winning team will start taking over Shuttle processing operations on October 1. The team is required to do everything necessary to prepare the Shuttle Space Transportation System for each mission from both the Kennedy Space Center in Florida, and Vandenberg Air Force Base in California. Some 15 contractors are currently performing this work.

"The Shuttle Processing Contract will consolidate these services into a single contractural arrangement that will permit the Space Shuttle launch processing cycle to evolve from a research and development phase into an operational mode," the NASA award announcement said.

### 'A significant contribution'

"We're delighted that NASA has selected the Lockheed-Grumman team for this very important Space Processing Contract," said Skurla, "It was just one year ago that I convinced Roy Anderson, the chairman of Lockheed, that we could make a significant contribution to the Lockheed team. Fortunately for all of us, Roy agreed that Grumman would be a very valuable partner."

Skurla went on to say that, "We believe our experience at Kennedy Space Center during the Lunar Module days and the reputation we built there was not forgotten during the decision process. Our selection with Lockheed is a reflection of NASA's confidence in our proven operational experience and we look forward to increasing our involvement in a growing Shuttle program, both with NASA and the U.S. Air Force."

Fred Haise, Grumman Technical Services President, shares those same opinions. "Grumman has always been a leader in our nation's space program. Besides building the wings for the Orbiter and the Shuttle Trainer aircraft, we played a major engineering role in the development of the Shuttle. Now with the Shuttle Processing Contract, we will help NASA and the Air Force save money and increase efficiency while making the Shuttle truly operational.

### High standards

"At the same time, the team will continue to strive for high standards in safety and workmanship," said Haise.

In all, about 6,000 people at Kennedy and 2,000 at Vandenberg will make up the Lockheed team. They'll be handling ground processing, launch and landing of the Shuttle fleet and the operation and maintenance of the Shuttle's associated ground systems. Nearly all will be hired from the present work force.

About 800 will wear the Grumman Technical Services badge at Kennedy, while another 300 Grummanites will be at Vandenberg, reports Haise. Only 40 Grumman people will be permanently transferred from Bethpage to the Cape.

### Biggest in years

This is the largest space contract won by Grumman since the company built the Lunar Module for the Apollo program during the late '60s and early '70s. It is, in fact, the largest single space contract awarded by NASA since 1972, when Rockwell International won the contract to build the Space Shuttles.

Until the Space Shuttle came along, space vehicles were not reused. But each Shuttle is designed to be used for 100 flights into space with a minimum of maintenance between flights.

### A single contractor

NASA and the Air Force, which is preparing to launch its own Shuttle missions from Vandenberg, decided that it would be better if a single contractor took responsibility for managing the process of readying Shuttles for launch, rather than 15 contractors as it did during the development flights.

Back in October 1981, the space agency invited companies that might like to do this work to witness the preparations for the third launch of the Shuttle.

A Grumman team of 16 led by Fred Haise headed for the Cape the following month. After spending several months studying operations at the Cape, Grumman deliberated whether to make a bid for the job as prime contractor or to join one of the other teams being formed. On November 9, 1982, Grumman announced that it had joined the Lockheed team.

While the Lockheed team had only one competitor for the multi-billion dollar contract, it was a powerful one. It was headed by Rockwell Shuttle Operations, a subsidiary of Rockwell International, the Shuttle's builders. That was, in fact, Rockwell's key selling point: it knew the Shuttle and all its related operations better than anyone.

### Formidable competition

Adding to the strength of the Rockwell bid were its teammates: Boeing, Martin Marietta, United Airlines and United Technologies.

But the Lockheed team also knew the Shuttle and had extensive experience in manned space operations. Lockheed manufactured the Orbiter's thermal tiles. Grumman had been a competitor to build the Shuttle itself, knew the craft's systems and was building the wings. Morton Thiokol manufactures the Shuttle's solid propellant booster rockets and Pan American, one of the world's most experienced airlines, brought along its knowledge of aircraft maintenance and turnaround.

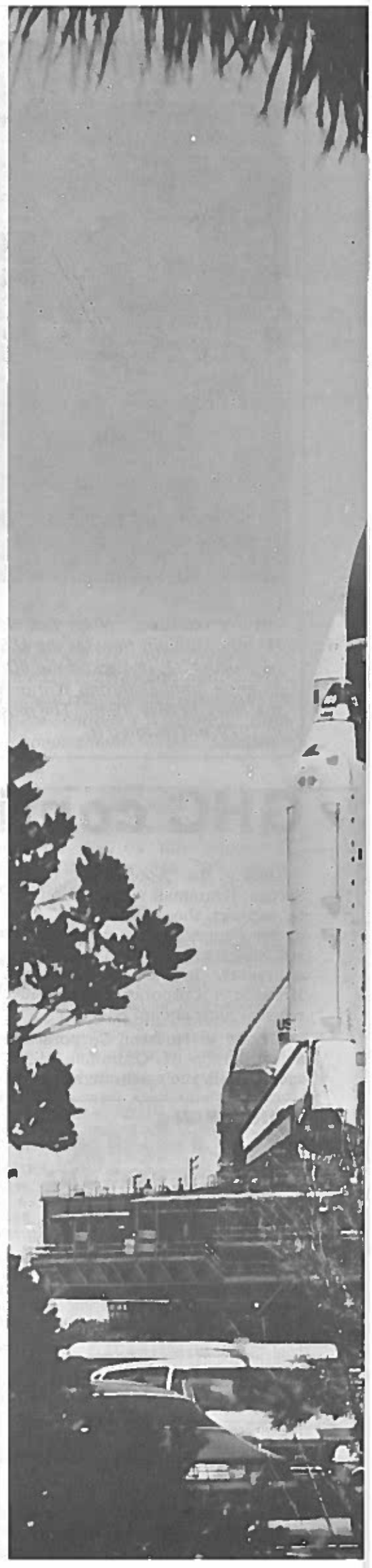
### Titusville headquarters

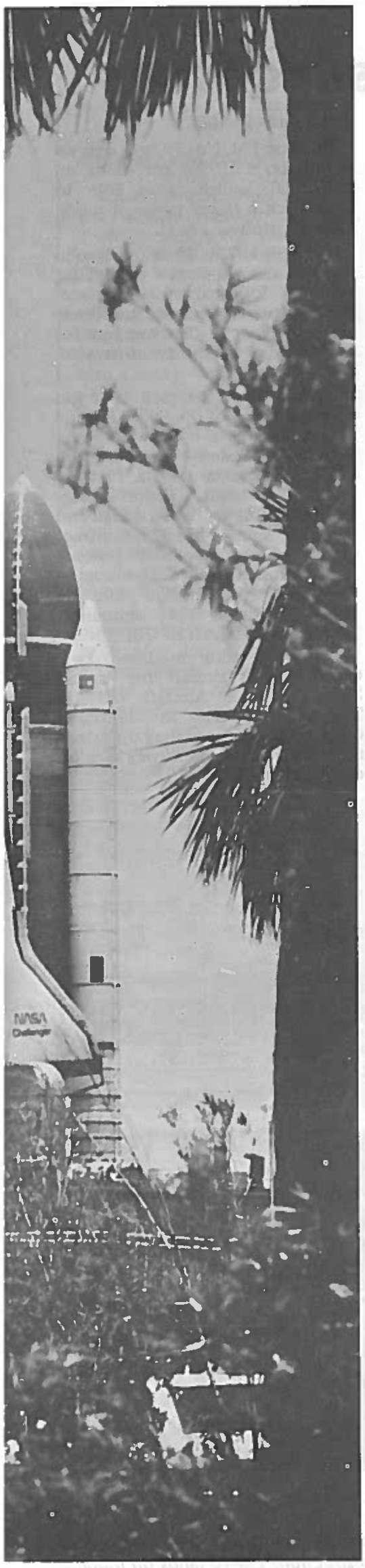
Lockheed Space Operations Company set up its headquarters in Titusville to prepare its bid. In April of this year, Grumman formed a new subsidiary called Grumman Technical Services Corporation to assist Lockheed in its bid for the SPC. The Grumman company set up headquarters right next door to Lockheed in Titusville.

On April 29, the two competing teams submitted their first proposals to NASA. Their "best and final" offers were delivered on July 5.

Back in October 1981 when that small Grumman team first went to Florida to study Shuttle operations, George Skurla predicted that "This contract would be a homecoming for us."

On September 7, 1983, NASA invited Grumman back home.





## At the Cape

# Grummanites prep to tackle SPC

TITUSVILLE, FLORIDA — It was Wednesday, September 7. The scuttlebutt was that NASA would announce the Shuttle Processing Contract (SPC) winner that day — even though the space agency had officially planned to release the news two days later. As the day wore on, the excitement grew to a feverish pitch at Grumman Technical Services headquarters here.

### A tough race

Across the parking lot, that same wave of anticipation and growing anxiety swept through Lockheed Space Operations headquarters. Throughout the morning and into the early afternoon, members of the Lockheed-Grumman team waited. They knew that they were in a horserace with a formidable team led by Rockwell International for this decade's largest NASA contract. They were also confident that they had submitted a top-notch proposal to NASA.

By noon, each telephone call increased the tension. "Finally around three o'clock we got the call — we had won!" says Fred Haise, Grumman Technical Services President.

"It was a long hard trail, "recalls Haise. "The pursuit for the SPC started back in October of 1981. Fortunately, we had a dedicated team of Grummanites who had extensive experience at the Cape during the Apollo program. Those people played a key role in our success."

After weeks of waiting for the announcement, the Grumman contingent is busy hustling again — only this time to get ready for the October 1 transition date. The team is back to seven-day work weeks. "We worked throughout the weekend following the announcement with NASA and the USAF to prepare for fact-finding and negotiations," states Haise.

The next big challenge is to get in gear to take over the management of the launch processing system — an elaborate network of computers, software and ground support used in the Shuttle turnaround process at both Kennedy and Vandenberg Air Force Base in California. In addition, Grumman is responsible for all of the instrumentation, measurement and calibration labs of the Shuttle operations for the total Lockheed-led team.

### 'A moving treadmill'

"Unlike a hardware development contract, we are taking over a processing system that is already in existence," says Haise. "It's like a moving treadmill that we've got to get in step with right away."

Getting in step means a gradual transition of Shuttle Processing responsibilities from the present 15 contractors to the Lockheed team starting October 1 in a logical order by functions and facilities, states Haise.

Preparations include interviewing, hiring and processing experienced people now working at the Cape and at Vandenberg. "We expect to have about 800 people working for Grumman Technical Services at the Cape and about 300 in California," states Haise. Only about 40 Grummanites will be permanently transferred to the Cape.

In the near future, Haise and his troops will move to their new onsite office at Kennedy. It will be a short distance from their quarters during the evaluation period back in late 1981. Only this time, the Grumman team is not visiting — they are settling down permanently at the Cape. They've got a well-earned job to do.

***On site.*** *Grummanites (L to R) Ron Strickland, Bob Biogiotti and Tom Hennessy are seen near the launch pad at the Cape before the Shuttle 'Columbia' blasted off early in 1982.*

***To the Cape.*** *Back in late 1981, Grumman Aerospace President George Skurla (C) came out to see the Grumman team off. Headed by Grumman Technical Services President Fred Haise (4th L), the team left for Kennedy Space Center to study Shuttle processing operations. The team consisted of (L to R) Bill Looney, Harlow Dunton, Charlie Scheulein, Pat De Marzo, Gordon Parker, Pat Ranieri, Bill Eager, Hobie Gilman, Joe Klimek; (on steps) Bill Weaver, John Elflein, Hank Morfin, Pete Daly and Frank Elliot. Present but camera shy: Lee Yager.*

*Space ventures*

# From small beginnings come great successes

Grumman's participation on the Space Shuttle processing team is the latest of a long series of space achievements. The company first became involved with space research in the late '50s, before the first American spacecraft was launched. Since then, Grumman has received a number of NASA contracts and has conducted a sizable amount of research and development with its own funds.

The following are some of the Grumman highlights in space.

1958: Grumman formed the Space Steering Group, headed by Al Munier.

1960: The Space Steering Group was renamed the Space Science Group, part of the newly formed Advanced Space Systems Department at Grumman.

October 1960: Grumman won a contract with NASA/Goddard Space Flight Center to design, test, and produce the Orbiting Astronomical Observatory (OAO). The OAOs (there were four of them over the span of 12 years) were the most advanced and most costly unmanned satellites of the 1960s. They were designed for an orbit of 500 miles above the earth's surface, worked on solar energy, and were equipped with a novel heat-disposal system to protect sensitive equipment on board. That equipment included optical, x-ray, and gamma-ray telescopes.

The first and third OAO launches failed, but the second and fourth were big successes. OAO Number Two was operational for four years and contributed greatly to scientific knowledge of the universe. Number Four went up in August of '72 and was deactivated in 1981. Both provided a view of stars, comets, planets, novae, and a supernova from an entirely new vantage point, high above the earth's atmosphere.

June 1961: Grumman received a contract to build nine canisters and adapters for the Echo II series of orbiting balloons. The first was launched in January of 1964.

November, 1962: Grumman was selected as the contractor for the Lunar Module, then known as the Lunar Excursion Module. The contract signing took place in January of '63. The bid price: $386 million.

1963 — 69: The Apollo spacecraft consisted of three separate modules: the Command, Service, and Lunar Modules. The signing of the LM contract initiated a period of intense research and development at Grumman.

The first two LMs were launched on unmanned orbital vehicles. The third went on an orbital trial run. The Apollo 10 mission of May, 1969, which carried LM-4, traveled to within 47,000 feet of the moon's surface and made 31 lunar revolutions. The mission also tested LM-4's capabilities, except for actual landing and liftoff.

July 20, 1969: It was hailed as "one small step for man; one giant leap for mankind." At 4:17 p.m., the LM-5, "Eagle," landed on the moon. Astronaut Neil Armstrong became the first person to ever walk on the moon's surface, and was followed by fellow astronaut Edwin Aldrin.

Six LMs landed on the moon in the years between 1969 and 1972. LM-7 made history in April of 1970 when it helped Apollo 13 astronauts Fred Haise (now president of Grumman Technical Services, Inc.), Jack Swigert, and Jim Lovell survive a disaster 205,000 miles from Earth. It functioned as a "lifeboat."

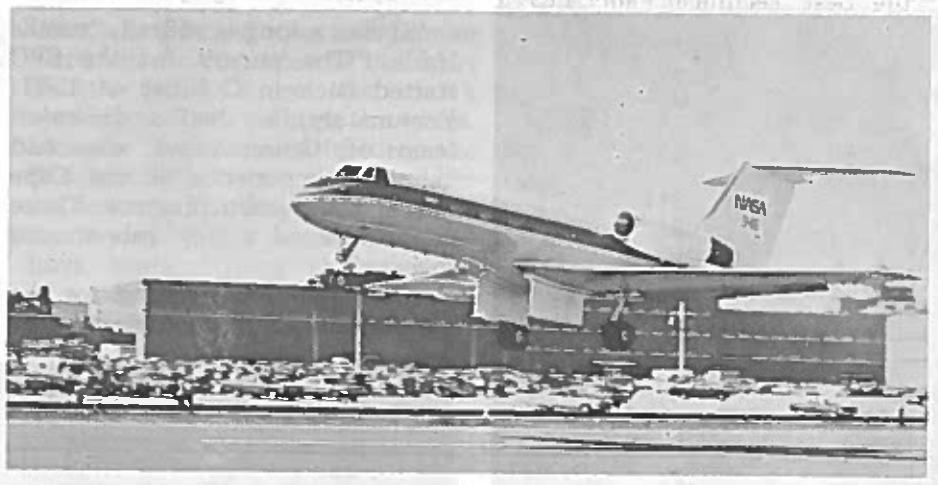
When Apollo 13 neared the moon's orbit, the Service Module's oxygen tank ruptured, rendering it useless. The three astronauts had to seek refuge in the LM, where they stayed for four days (the LM had been designed to support two people for a maximum of three days). The astronauts also had to rely on LM-7's small engine to navigate the Apollo 13 back to Earth, since the Service Module was inoperative and the Command Module was designed to remain dormant until immediately before reentry. The three astronauts made it back to safety to the splashdown area in the South Pacific.

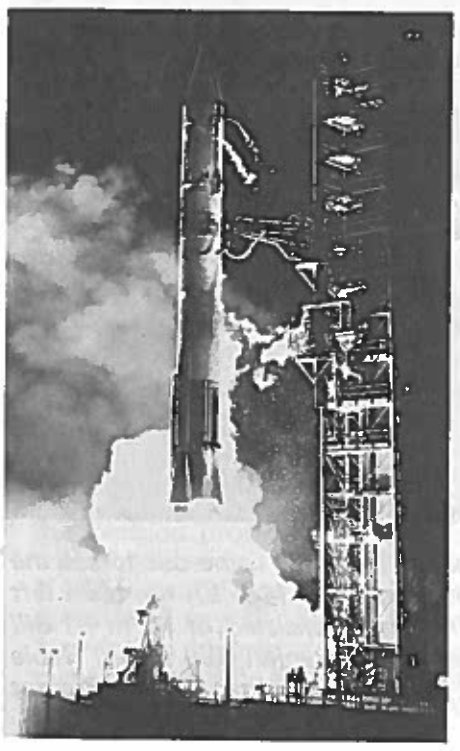
The last LM, No. 12, was sent up on Apollo 17. The astronauts on this final launch were able to bring back a heavy cargo of moon rocks for study.

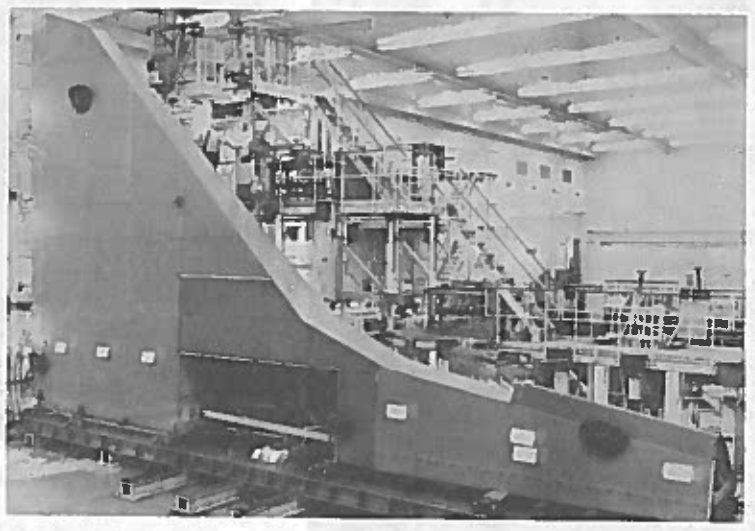
1972 — 1973: When the Apollo program ceased in the early '70s, a period followed of less government spending on space and fewer NASA contracts. This was true for Grumman as well as the other aerospace contractors.

Things began to pick up again with the onset of the Space Shuttle (which also goes by the acronym STS, for Space Transportation System) program — the first reusable spacecraft. Unfortunately Grumman lost its bid to design and build the Shuttle in 1972. Contract award winner Rockwell International subsequently subcontracted Grumman to design and build the Shuttle's wings. That announcement came in March of '73.

Grumman also modified two Gulfstream II aircraft for use as Shuttle Trainer Aircraft (STAs). The STAs simulate shuttle flight entry conditions, enabling the astronauts to practice maneuvers such as dead-stick landings.







***Milestones.*** *Clockwise from left: the second OAO launch at Cape Kennedy; Grummanite works on canister for Echo II orbiting balloon; STA takes off from Bethpage; Shuttle wings under construction; LM-10 lands on moon.*

# people

## Aerospace award

Chuck Sewell, chief test pilot and deputy director of Flight Test program, is this year's recipient of the Sperry award for outstanding contributions to the aerospace industry.

Chuck received the award on August 13 at a banquet sponsored by the Air Force Association (AFA), which chooses the award recipient. The banquet was held at Griffis Air Force Base in Rome, N.Y.

In selecting Chuck for this year's award, the AFA cited his innumerable successful test flights, which have resulted in the improvement of aerospace technology.

The award is sponsored by the Sperry Corporation and is named for its founder, Lawrence B. Sperry. This is the second year in a row that it has gone to a Grummanite — last year's recipient was the late Leroy Grumman.

Chuck has previously been awarded by the AFA at two annual symposia for presenting the Best Technical Paper (1979 and 1982). He is also a past recipient of the Kincheloe Award for test pilot of the year, given out by the Society of Experimental Test Pilots, and the American Institute of Aeronautics and Astronautics' Octave Chanute Award.

## Manufacturing scholars

Opportunity offered through the Manufacturing Scholarship program knocked on five doors this year.

Two Grummanites and three others who earned their associate degrees won the two-year scholarships to go on to study for their four-year degrees in manufacturing engineering/technology.

The Grummanites are Peter Cardinale of Machining Operations and Robert Sayler of Manufacturing and Materials Engineering.

Winners George Catania and James Logan were both June graduates of the State University of New York at Farmingdale. Maurice Smith was a Suffolk Community College grad.

All five worked at Grumman in the Manufacturing department for the summer.

Cardinale, Catania and Logan are heading for Weber State College in Utah, while Sayler and Smith will stay closer to home, studying for their degrees at the New Jersey Institute of Technology.

The 1981 winners, Frank Caputo and Mike Sheeron, graduated this past June from Weber State and are both back at Grumman, working as manufacturing engineers.

## Professionally speaking

At the Society of Logistics' board of directors meeting, Grummanite Lou Geneve of Integrated Logistics Support was elected to the board of governors and selected as president of the Logistic Education Foundation.

Grummanite Ben Burns, also of ILS, was elected treasurer of the Logistic Education Foundation.

## Photo honor

Charles Cohen, a Grumman aerospace engineer, has received one of the higher honors bestowed by the Photographic Society of America. At its recent awards dinner in San Francisco, Cohen was named an "associate."

Only about 650 people hold the "associate" rank in the society, which has about 18,000 members. Cohen's recognition came primarily for his service to local clubs and as director of the nature division's slide study groups' efforts which are distributed nationwide.

*Charles Cohen*

## New assignments

The following Grummanites received new assignments recently:

*Configuration/Data Management* — Deborah Gelderman, assistant manager, ATE Systems Configuration/Data Management.

*Corporate Quality & Safety Operations* — Alfred Weyhreter, manager, Quality — Procured Material Planning; Joseph Becker, Quality Program Manager, Nacelles and Thrust Reversers Program.

*Engineering Dept.* — Harvey Eidinoff, engineering specialist — Fracture Mechanics; Morton Mantus, project leader, Design Development, Space-Based Radar; Mike Fusco, task leader, F-14 ( ) Weapons Employment; Jerome LaMagna, group leader, Electromagnetic Environmental Effects, E-2C; Hans Forsch, engineering manager, LAVI Program.

*Integrated Logistics Support* — Daniel Collins, project manager, Publications, C2/A4 Programs; John Strenk, assistant project manager, Publications, C2/A4 Programs; Jerry Foroglou, technical specialist, Systems Engineering; George Weinstein, technical specialist, Systems Engineering; Stanley Ramsden, ILS Program manager, A-4; Bruce Saidler, assistant project manager, Supply Operations, F-14 Program; Edward Shea, director, ILS Trainer Systems Engineering; Robert Sison, section head, Operations Support, Design Engineering; Michael Elem, director, ILS Systems Engineering; Arthur Granata, project manager, ILS Engineering, F-14; Paul Cavanaugh, project engineer, Test Program Sets Engineering, LAMPS; Frank Angrisani, director, ILS Test Program Sets Engineering; Radcliffe David, technical advisor, Supply Operations; Donald Kump, director, Automatic Test Equipment Engineering; Edward Bugeja, engineering specialist, Digital Test Program Sets Engineering; Anthony Fama, manager, Technical Requirements, Supply Operations; Thomas Marinus, project manager, Supply Operations, EF-111; Donald Fries, project manager, Supply Operations, E-2; Thomas Oliveri, project engineer, Test Program Sets Engineering, F-18; Ilmars Hofmanis, principal engineer, Automatic Test Equipment Engineering; Martin Jungman, principal engineer, Automatic Test Equipment Engineering; Seymour Baldel, project manager, Supply Operations, C-2A; Joseph Atlas, technical specialist, Automatic Test Equipment Engineering.

***Fast track.*** *Before he returned to California State University-Northridge for his final semester, Grumman summer employee Mike Bisnett showed fellow workers at Pt. Mugu Operations in California the high-tech bicycle which he and other students designed. To enter the American Society of Mechanical Engineers' race, the vehicle had to be aerodynamically efficient at 65 mph. The young mechanical engineer hopes to pursue a Grumman career. His interest: composites.*

## The gate policy

Feel frustrated when you come in early, or work late, and find the gate you normally enter or leave from is shut tight? Fret no more. Here's a list of the gates in the Bethpage complex with the times when they are open.

| | |
|---|---|
| Plant 1 Main Gate | 5:30 AM to 6:00 PM — Monday — Friday<br>Sat. — 5:30 AM to 8: AM — 2:45 PM to 4:00 PM (Closed Sun. & Holidays) |
| Plant 2 Main Gate | 5:00 AM — 2:00 AM — Monday — Saturday |
| Plant 2 South Gate | 6:30 AM to 8:00 AM — 12 Noon to 1:00 PM<br>3:00 PM to 4:45 PM — Monday — Friday |
| Plant 3 Main Gate | 24 Hours — 7 Days a Week |
| Plant 4 Hazel St. Gate | 5:00 AM to 7:00 PM — Monday — Friday<br>3:00 PM to 4:00 PM — Saturdays |
| R.R. Gate | 24 Hours — 7 Days a Week |
| Plant 12 Main Gate | 24 Hours — 7 Days a Week<br>(When Plant Closed; Every Hour on 1/2 Hour) |
| Plants 14-15 Main Gate | 6:30 AM to 5:15 PM — Monday — Friday |
| Plant 15 North Gate | 7:15 AM to 4:15 PM — Monday — Friday |
| Plants 21-37 Gate | 6:00 AM to 12 Mid. — Monday — Friday |
| Plant 24 Stewart Ave. Gate | 6:00 AM to 5:00 PM — Monday — Friday |
| Plant 30 Gate | 5:00 AM to 11:00 PM — Monday — Friday |
| Plant 35 Gate | 6:30 AM to 6:00 PM — Monday — Friday |
| Hdqtrs. Bldg. Gate | 24 Hours — 7 Days a Week |
| Plant 28 | 5:30 AM to 5:30 PM — Monday — Friday |

# scorecard

## Whist tourney

It's time to deal out the cards for Recreation's second annual Bid Whist tournament. The tourney starts on October 22 at 4 p.m. in the Plant 28A auditorium.

Other than the rules of the game, the only requirements are that one of the two partners entering the tournament must be a Grumman employee and the other must be an employee, retiree or member of the Grummanite's family.

To enter, send your name, mail stop, extension and the name of your partner to Herb Mahoney, A01-28A, no later than October 19.

## Art and Photo show

It's show time! Time for the annual Art and Photography show, that is.

This year, the show will run from November 10 through 13. Prizes will be awarded on Friday, November 11.

This is your chance to show the world your skills with paint brush, clay or the still camera. There are many categories for you to enter so drop by Recreation, Plant 28A, for rules and the list of categories. Entries will be accepted from November 7 through 9. Grummanites in Calverton who would like to enter should contact Barbara Homrighouse, Ext. (117)-6519. If you work in Great River call Cheryl Hirsch, Ext. (113)-6047.

Best of show winners will receive $100 bonds. Ribbons will be awarded for first, second and third place winners in each category.

## Volleyball buffs

The Grumman volleyball season gets started on Tuesday, October 4, at 5 p.m. Action takes place in the Kramer Lane School in Bethpage. For more information, call, Johnnie Woods, Ext. 115-3779, or Richard Sailor, Ext. 0881.

# Carpools

**BAYPORT/SAYVILLE TO BETHPAGE:** start or join existing carpool. T. Beringer, Ext. 8767.

**QUEENS TO BETHPAGE:** Rider(s) wanted to start carpool from Bayside, Queens, to Bethpage. Call Beth Sloane, Ext. 5529/(212) 423-8153.

**RIDE FROM LEVITTOWN TO BETHPAGE:** to New South Rd. or Hazel Street gate, will pay weekly. 7:30 a.m. to 4 p.m. Julius Lesser, 735-4607 or Ext. 5235.

# Personals

On behalf of my family, I would like to thank all my Grumman friends and co-workers for their generous support and expressions of sympathy during the recent loss of my daughter. Tom Coker

The Palmeri family would like to thank our many friends at Grumman for their kindness and sympathy during the recent loss of our father. Sal Palmeri

I would like to say so long and thank you to everyone I missed during my last weeks of work before retiring on August 31. Your friendship will be valued and remembered. The past 27 years at Grumman were a good and happy part of my life. Bless you all. Millie Capobianco

GRUMMAN plane news

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